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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,348	09/24/2003	Kunihiko Kodama	Q77664	3904

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EXAMINER	
LEE, SIN J	

ART UNIT	PAPER NUMBER
1752	

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/668,348	KODAMA, KUNIHIKO	
	Examiner	Art Unit	
	Sin J. Lee	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-8 and 10-15* is/are rejected.

7)☒ Claim(s) *3 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3-17-04 & 9-24-03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

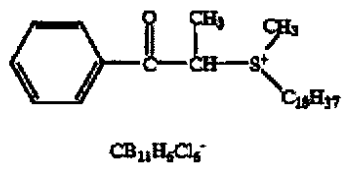
Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Crivello (6,031,014).

Crivello teaches the following compound in col.7, lines 28-34:



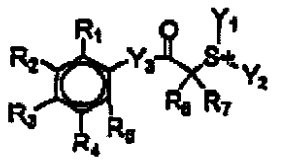
This compound meets Crivello's general formula shown in col.3, lines 5-20, and Crivello teaches that in the general formula, R can be C_6-C_{20} alkyl, aryl, C_6-C_{20} substituted alkyl or substituted aryl. Since there are only several choices given, one of ordinary skill in the art would immediately envisage R of the formula to be a C_6-C_{20} alkyl group instead of the aryl group as in the compound shown above. Therefore, Crivello teaches present compound of the formula (I). Crivello teaches (col.3, lines 48-60, col.9, lines 57-62) a cationic polymerizable composition (which is polymerized by using UV lamps such as mercury arc lamps, xenon arc lamps, high intensity halogen-tungsten arc lamps, microwave driven arc lamps and lasers) containing his inventive compound (as cationic

polymerization initiator) and a polymerizable monomer or oligomer or mixture thereof. Therefore, the prior art teaches present inventions of claims 1 and 14.

3. Claims 1, 2, 4, 5, 7, 8, 10-12, 14, and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by Kodama et al (EP 1 260 864 A1).

Kodama's claim 1 states the following:

> 1. A positive photosensitive composition comprising (A) an acid generator, which generates an acid upon irradiation of an actinic ray or radiation, represented by formula (I) shown below, and (B) a resin that has a monocyclic or polycyclic alicyclic hydrocarbon structure and is decomposed by the action of an acid to increase a solubility rate in an alkali developing solution.



(I)

> wherein R_1 to R_5, which may be the same or different, each represent a hydrogen atom, an alkyl group, an alkoxy group, a nitro group, a halogen atom, an alkoxycarbonyl group or an aryl group, or at least two of R_1 to R_5 may be combined with each other to form a ring structure; R_6 and R_7, which may be the same or different, each represent a hydrogen atom, an alkyl group, a cyano group or an aryl group; Y_1 and Y_2, which may be the same or different, each represent an alkyl group, an aryl group, an aralkyl group or an aromatic group containing a hetero atom, or Y_1 and Y_2 may be combined with each other to form a ring; Y_3 represents a single bond or a divalent connecting group; and X^- represents a non-nucleophilic anion; provided that at least one of R_1 to R_5 and at least one of Y_1 and Y_2 are combined with each other to form a ring or at least one of R_1 to R_5 and at least one of R_6 and R_7 are combined with each other to form a ring; and any of R_1 to R_7 and Y_1 to Y_2 is bonded through a connecting group to form a compound having two or more structures represented by formula (I).

Since Kodama teaches that his R_6 and R_7 can be a H atom, an alkyl group, a cyano group or an aryl group, one of ordinary skill in the art would immediately envisage R_6 and R_7 to be alkyl groups (therefore, the prior art teaches present R_2 and Y). Also, in [0048], Kodama teaches that Y_3 can be a divalent connecting group such as *alkylene group* which may be substituted, an alkenylene group which may be substituted, -O-, -S-, -CO, -CONR-, or a connecting group formed by combination of two or more of these groups. Since there are only several choices given, one of ordinary skill in the art would

immediately envisage Kodama's Y_3 to be an alkylene group (therefore, the prior art teaches present R_1 group which is *an alkyl group* substituted with an aryl group – *present specification (see pg.13-14) states that the alkyl group represented by R_1 may have an aryl substituent*). Therefore, Kodama teaches present compound of the general formula (I), and the prior art teaches present inventions of claims 1, 2, 4, and 14.

With respect to present claim 5, Kodama teaches in his claim 6 that his resin component (B) of claim 1 contains a repeating unit of any one of the formulae (V-1) to (V-4), and all of those formulae listed in the claim 6 contains a lactone structure. Therefore, Kodama teaches present invention of claim 5.

With respect to present claims 7 and 8, Kodama teaches in his claim 9 that his positive photosensitive composition of claim 1 further comprises a dissolution inhibiting low molecular weight compound having a group capable of being decomposed by the action of an acid to increase solubility in an alkali developing solution and having a molecular weight of not more than 3,000. Also, in [0257], Kodama teaches that his positive photosensitive composition may contain an alkali developer-soluble resin in order to improve the sensitivity of the photosensitive composition. Based on this teaching, one of ordinary skill in the art would immediately envisage adding an alkali developer-soluble resin into Kodama's composition. Therefore, the prior art teaches present inventions of claims 7 and 8.

With respect to present claim 10, Kodama teaches in his claim 3 that his positive photosensitive composition of claim 1 further comprises a basic compound. Therefore, the prior art teaches present invention of claim 10.

With respect to present claim 11, Kodama teaches in his claim 8 that his positive photosensitive composition of claim 1 further comprises a fluorine and/or silicon surface active agent. Therefore, the prior art teaches present invention of claim 11.

With respect to present claim 12, as already explained above, based on Kodama's teaching in his claim 1, one of ordinary skill in the art would immediately envisage his R_6 and R_7 to be alkyl groups (thus teaching present R_2 and Y). Furthermore in [0036], Kodama teaches that the alkyl group represented by any one of R_1-R_7 is preferably an alkyl group having from 1-5 carbon atoms. Therefore, the prior art teaches present invention of claim 12.

With respect to present claim 15, in [0272], Kodama teaches a method of obtaining a resist pattern by forming a film made of his composition, imagewise exposing the film to light, followed by baking and development. Therefore, the prior art teaches present invention of claim 15.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

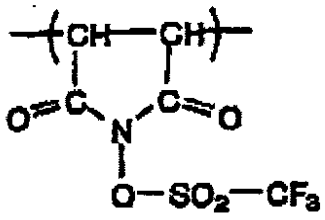
5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crivello (6,031,014) in view of Schell et al (6,326,131 B1).

Crivello is discussed above in Paragraph 2. Although Crivello does not explicitly teach the present surfactant of claim 11, fluorine-containing surfactants are conventionally used as coating aids in coatings, as evidenced by Schell et al, col.4, lines 31-33. Since Crivello's composition is also used as protective and abrasion resistant coatings for wood, metals, plastics and glass (see col.11, lines 62-64), it would have been obvious to one of ordinary skill in the art to employ a fluorine-containing surfactant in Crivello's composition in order to enhance the coatability of the composition. Therefore, Crivello in view of Schell et al would render obvious present invention of claim 11.

6. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodama et al (EP 1 260 864 A1).

Kodama et al is discussed above in Paragraph 3.

With respect to present claim 6, in [0201], Kodama teaches that the resin of his component (B) may further contain a repeating unit of the formula (VIII) (for the formula, see [0201]), and as one of specific examples of the repeating unit of the formula (VIII), Kodama includes the following:



It would have been obvious to one of ordinary skill in the art to use the above repeating unit to be included in Kodama's resin with a reasonable expectation of providing a positive photosensitive composition that has high sensitivity and is improved in the edge roughness of pattern. Therefore, Kodama's teaching would render obvious present invention of claim 6.

With respect to present claim 13, Kodama teaches ([0080]) that an acid-generating compound other than the compound of his component (A) may be used together in his positive photosensitive composition, and Kodama lists particularly preferred examples (z1-z40) of such compound in [0089]. It would have been obvious to one of ordinary skill in the art to use $(C_6H_5)_3S^+$ $CF_3SO_3^-$, which is one of those examples and which is an arylsulfonium compound, as Kodama's other acid-generating compound with a reasonable expectation of providing a positive photosensitive composition that has high sensitivity and is improved in the edge roughness of pattern. Therefore, Kodama's teaching would render obvious present invention of claim 13.

Allowable Subject Matter

7. Claims 3 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Neither of Crivello and Kodama teaches or suggests the present resin (B) of claim 3 which contains a hydroxystyrene structural unit. Crivello does not teach or suggest present acid crosslinking agent of claim 9. Kodama does not teach or suggest present negative photosensitive composition of claim 9.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff, can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. J. L.
S. Lee
May 26, 2004

Sin J. Lee
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Patent Examiner
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